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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/789,333

02/26/2004

Charles C. Lee

3058P

9412

7590

03/02/2006

SAWYER LAW GROUP LLP

P.O. Box 51418

Palo Alto, CA 94303

EXAMINER

KIM, HONG CHONG

ART UNIT

PAPER NUMBER

2185

DATE MAILED: 03/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/789,333

Applicant(s)

LEE ET AL.

Examiner

Hong C. Kim

Art Unit

2185

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/26/04</u> . | 6) <input type="checkbox"/> Other: _____  |

*id*

**Detailed Action**

1. Claims 1-52 are presented for examination. This office action is in response to the application filed on 2/26/2004.

***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 2/25/05 is being considered by the examiner.

The examiner requests, in response to this Office action, any reference(s) known to qualify as prior art under 35 U.S.C. sections 102 or 103 with respect to the invention as defined by the independent and dependent claims. That is, any prior art (including any products for sale) similar to the claimed invention that could reasonably be used in a 102 or 103 rejection. This request does not require applicant to perform a search. This request is not intended to interfere with or go beyond that required under 37 C.F.R. 1.56 or 1.105.

The request may be fulfilled by asking the attorney(s) of record handling prosecution and the inventor(s)/assignee for references qualifying as prior art. A simple statement that the query has been made and no prior art found is sufficient to fulfill the request. Otherwise, the fee and certification requirements of 37 CFR section 1.97 are waived for those documents submitted in reply to this request. This waiver extends only to those documents within the scope of this request that are included in the application's first complete communication responding to this requirement. Any supplemental replies subsequent to the first communication responding to this request and any information

disclosures beyond the scope of this are subject to the fee and certification requirements of 37 CFR section 1.97.

In the event prior art documentation is submitted, a discussion of relevant passages, figs. etc. with respect to the claims is requested. The examiner is looking for specific references to 102/103 prior art that identify independent and dependent claim limitations. Since applicant is most knowledgeable of the present invention and submitted art, his/her discussion of the reference(s) with respect to the instant claims is essential. **A response to this inquiry is greatly appreciated.**

**The examiner also requests**, in response to this Office action, support be shown for language added to any original claims on amendment and any new claims. That is, indicate support for newly added claim language by specifically pointing to page(s) and line number(s), in the specification and/or drawing figure(s). This will assist the examiner in prosecuting the application.

3. The status of the referenced U.S. applications (i.e. 11/037,047, 10/799,039) must be updated accordingly (e.g., U.S. Patent Application Serial No. ###/###,### filed Sept. 07, 1990, now abandoned; ..., now U.S. Patent #,###,### issued Jan. 01, 1994; or This application is a continuation of Serial Number ###/###,###, filed on December 01, 1990, now abandoned; ...etc.) in the Related Applications section and in any other corresponding area in the specification, if any.

### ***Specification***

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The title should be more specific to differentiate the invention from similar inventions in the patent literature. without the host system having information regarding the configuration of the flash memory aspect of the invention should be mentioned in the title so that the title is more descriptive.

5. The drawings are objected to under 37 C.F.R. § 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, wherein the host system interacts with the flash memory controller without the host system having information regarding the configuration of the flash memory and block copying valid data from sectors of a first block to sectors of a second block, wherein the sectors of the first block become obsolete sectors must be shown or the feature cancelled from the claim. No new matter should be entered.

### ***Double Patenting***

6. The non-statutory double patenting rejection, whether of the obviousness-type or non-obviousness-type, is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent. *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re*

*Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); and *In re Goodman*, 29 USPQ2d 2010 (Fed. Cir. 1993).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(b) and (c) may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.78(d).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1-52 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-39 of copending Application No. 10/956.826 in view of Roohparvar US Patent Pub. No. 2002/00369226.

As to claims 1, 16, 31, and 42, US Application 10/956.826 claims a flash memory controller comprising: a processor for receiving at least one request from a host system; and an index and comprising information regarding sectors of a flash memory, wherein the processor can utilize the index to determine the sectors of the flash memory that are available for programming, reprogramming, or reading. However, 10/956.826 does not specifically disclose the host system interacts with the

flash memory controller without the host system having information regarding the configuration of the flash memory.

Roohparvar discloses the host system interacts with the flash memory controller without the host system having information regarding the configuration of the flash memory (block 114 middle, background operation reads on this limitation) for the purpose of providing simultaneous operation thereby increasing data bandwidth.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the host system interacts with the flash memory controller without the host system having information regarding the configuration of the flash memory of Roohparvar into the 10/956.826 because it would prevent data loss when one system fail.

As to claims 2-15, 17-30, 32-41, and 43-52, claims are rejected because they incorporate the defect of the parent claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Claim Rejections - 35 USC ' 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious

at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-4, 8, 9, 12, 16-19, 23, 24, 27, 31-34, 38, 42-45, and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. (Lee) US Patent Pub. No. 2003/0177300 in view of Roohparvar US Patent Pub. No. 2002/00369226.

As to claims 1, 16, 31, and 42, Lee discloses a flash memory controller (Fig. 4) comprising: a processor (Fig. 5 Ref. 1) for receiving at least one request from a host system (Fig. 1 Ref. 4); and an index (block 18 middle) and comprising information regarding sectors of a flash memory, wherein the processor can utilize the index to determine the sectors of the flash memory that are available for programming, reprogramming, or reading (block 18), however, Lee does not specifically disclose the host system interacts with the flash memory controller without the host system having information regarding the configuration of the flash memory.

Roohparvar discloses the host system interacts with the flash memory controller without the host system having information regarding the configuration of the flash memory (block 114 middle, background operation reads on this limitation) for the purpose of providing simultaneous operation thereby increasing data bandwidth.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the host system interacts with the flash memory controller without the host system having information regarding the configuration of the flash memory as shown in Roohparvar into the invention of Lee for the advantages stated above.



As to claims 2, 17, 32, and 43, Lee and Roohparvar disclose the invention as claimed above. Lee further discloses the at least one request comprises a logical block address for reading or writing and wherein the index maps the logical block address to a physical block address in the flash memory (block 18).

As to claims 3, 18, 33, and 44, Lee and Roohparvar disclose the invention as claimed above. Lee further discloses a first-in-first-out unit (FIFO) (block 54) for recycling obsolete sectors so that they are available for reprogramming.

As to claims 4, 19, 34, and 45, Lee and Roohparvar disclose the invention as claimed above. Roohparvar further discloses the FIFO recycles obsolete sectors in the background with respect to the host system to free up resources of the host system (Block 18).

As to claims 8 and 23, Lee and Roohparvar disclose the invention as claimed above. Lee further discloses the index comprises a look-up table (block 18 and Figs. 6 and 7).

As to claims 9 and 24, Lee and Roohparvar disclose the invention as claimed above. Lee further discloses the index comprises a physical usage table (block 18 and Figs. 6 and 7).

As to claims 12, 27, 38, and 49, Lee and Roohparvar disclose the invention as claimed above. Lee further discloses the flash memory controller provides multiple-block data access (blocks 17 and 18).

9. Claims 5-7, 10-11, 0-22, 25-26, 36-37, and 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable Lee et al. (Lee) US Patent Pub. No. 2003/0177300 in view of Roohparvar US Patent Pub. No. 2002/00369226 and further in view of Deng et al. (Deng) US Patent Pub. No. 2005/0216624.

As to claims 5 and 20, Lee and Roohparvar disclose the invention as claimed above. However, neither Lee nor Roohparvar discloses comprising a Universal Serial Bus interface to the host system.

Deng discloses a Universal Serial Bus interface to the host system (block 43) for the purpose of providing the latest standard thereby more versatile and marketable.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a Universal Serial Bus interface to the host system as shown in Deng into the combined invention of Lee and Roohparvar for the advantages stated above.

As to claims 6 and 21, Lee, Roohparvar, and Deng disclose the invention as claimed above. Deng further discloses the flash memory controller and the flash memory function as a hard disk and/or hard disk equivalent (block 43) for the host

system.

As to claims 7 and 22, Lee, Roohparvar, and Deng disclose the invention as claimed above. Deng further discloses the processor utilizes SCSI protocols to interface with the flash memory (block 43).

As to claims 10, 25, 36, and 47, Lee, Roohparvar, and Deng disclose the invention as claimed above. Deng further discloses the flash memory controller can be applied to USB and ExpressCard plug and receptacle systems (block 43).

As to claims 11, 26, 37, and 48, Lee, Roohparvar, and Deng disclose the invention as claimed above. Deng further discloses the flash memory controller can be applied to multi-mode USB, Secure Digital (SD), MultiMediaCard (MMC), Memory Stick (MS), and Compact Flash (CF) plug and receptacle systems (block 43).

10. Claims 13-15, 28-30, 39-41, and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable Lee et al. (Lee) US Patent Pub. No. 2003/0177300 in view of Roohparvar US Patent Pub. No. 2002/00369226 and further in view of Ajiro US Patent Pub. No. 2003/0182528.

As to claims 14, 29, 40, and 51, Lee and Roohparvar disclose the invention as claimed above. However, neither Lee nor Roohparvar discloses multiple banks interleave.

Ajiro discloses the flash memory controller can perform multiple banks interleave (Fig. 2) for the purpose of providing faster access speed by alternating between two memory devices.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate multiple banks interleave as shown in Ajiro into the combined invention of Lee and Roohparvar for the advantages stated above.

As to claims 13, 28, 39, and 50, Lee, Roohparvar, and Ajiro disclose the invention as claimed above. Ajiro further discloses the flash memory controller provides dual channel processing (Fig. 2).

As to claims 15, 30, 41, and 52, Lee, Roohparvar, and Ajiro disclose the invention as claimed above. Ajiro further discloses the flash memory controller can perform functions of multiple block access, multiple bank interleaving, and multiple channel operations in a memory access cycle (Fig.2 ).

#### ***Allowable Subject Matter***

11. Claims 35 and 46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and overcome rejected claims.

***Conclusion***

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached PTO-892.
2. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) days from the mail date of this letter. Failure to respond within the period for response will result in **ABANDONMENT** of the application (see 35 USC 133, MPEP 710.02, 710.02(b)).
3. When responding to the office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections. See 37 C.F.R. ' 1.111(c).
4. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist examiner to locate the appropriate paragraphs.
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Kim whose telephone number is (571) 272-4181. The examiner can normally be reached on M-F 9:00 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

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supervisor, Matt Kim can be reached on (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 whose telephone number is (571) 272-2100.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

7. **Any response to this action should be mailed to:**

Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**or faxed to TC-2100:**  
571-273-8300

Hand-delivered responses should be brought to the Customer Service Window (Randolph Building, 401 Dulany Street, Alexandria, VA 22314).

HK  
Primary Patent Examiner  
February 21, 2006

